

Chapter 17.28**MINIMUM GRADING STANDARDS AND GENERAL REQUIREMENTS****Sections:**

- 17.28.010** **General Requirements.**
17.28.020 **Hillside/Arroyo Grading.**
17.28.030 **Dust Control/Erosion Control/Landscaping.**

Section 17.28.010 General Requirements.

General Requirements. The following standards and general requirements shall apply to all grading requiring a grading permit. In addition to the minimum standards which apply to all grading, supplementary regulations which apply to grading of hillsides and arroyos are also included.

A. Cuts.

1. General. Unless otherwise recommended in the approved soils engineering and/or engineering geology report, cuts shall conform to the provisions of this Section. In the absence of an approved soils engineering report, these provisions may be waived for minor cuts not intended to support structures.

2. Slope. The slope of cut surfaces shall be no steeper than is safe for the intended use and shall be no steeper than two horizontal to one vertical (2:0) unless the owner furnishes a soils engineering or an engineering geology report, or both, stating that the site has been investigated and giving an opinion that a cut at a steeper slope will be stable and not create a hazard to the public or private property and is consistent with the overall landform grading. The Public Works Director shall have the ultimate decision as to whether a slope steeper than 2:1 may be permitted.

3. Drainage and terracing shall be provided as required in Chapter 17.28.

B. Fills.

1. General. Unless otherwise recommended in the approved soils engineering and/or engineering geology report, fills shall conform to the provisions of this Section. In the absence of an approved soils engineering report, these provisions may be waived for minor fills not intended to support structures.

2. Preparation of ground. The ground surface shall be prepared to receive fill by removing vegetation, noncomplying fill, topsoil and other unsuitable materials, scarifying to provide a bond with the new fill and, where slopes are steeper than five to one and the height is greater than five feet, by benching into sound bedrock or other competent material as determined by the soils engineer. The bench under the toe of a fill on a slope steeper than five to one shall be at least ten feet wide. The area beyond the toe of fill shall be sloped for sheet overflow or a paved drain shall be provided. When fill is to be placed over a cut, the bench under the toe of fill shall be at least ten feet wide but the cut shall be made before placing the fill and the acceptance by the soils engineer or engineering geologist or both as a suitable foundation for fill.

3. Fill material. Detrimental amounts of organic materials shall not be permitted in fills. Except as permitted by the Public Works Director, no rock or similar irreducible material with a maximum dimension greater than twelve inches shall be buried or placed in fills.

a. Exception. The Public Works Director may permit placement of larger rock when the soils engineer properly devises a method of placement and approves the fill stability. The following conditions shall also apply.

i. Prior to issuance of the grading permit, potential rock disposal areas shall be delineated on the grading plan.

ii. Rock sizes greater than twelve inches in maximum dimension shall be ten feet or more below grade, measured vertically.

iii. Rocks shall be placed so as to assure filling all voids with fines.

4. Compaction. All fills shall be compacted to a minimum of ninety percent of maximum density as determined by UBC Standard No. 70-1. In-place density shall be determined in accordance with recognized current ASTM standards for determining in-place density of soils. After ninety percent compaction has been obtained, those areas of the graded site that will not be built upon may be sacrificed to promote the growth of landscaping, improve irrigation and reduce drainage problems.

5. Slope. The slope of fill surfaces shall be no steeper than is safe for the intended use and shall be no steeper than two horizontal to one vertical (2:1) unless the owner furnishes a soils engineer or an engineering geology report, or both, stating that the site has been investigated and giving an opinion that a fill at a steeper slope will be stable and not create a hazard to public property and is consistent with the overall landform grading. The Public Works Director shall have the ultimate decision as to whether a slope steeper than 2:1 may be permitted.

6. Drainage and Terracing. Drainage and terracing shall be provided and the area above fill slopes and the surfaces of terraces shall be graded and paved as required by Section 17.28.010E.

C. Retaining walls.

1. Retaining walls constructed of materials architecturally consistent with the development may be permitted in lieu, or in combination with cut or fill slopes. Retaining or crib walls in an area not open to public view are permitted up to six feet in height unless a higher wall is approved administratively. Retaining or crib walls exposed to public view shall not exceed three feet in height unless approved administratively and shall be included as part of the permitted height of the slope.

D. Setbacks.

1. General. Cut and fill slopes shall be setback from site boundaries in accordance with this Section. Setback dimensions shall be horizontal distances measured perpendicular to the site boundary. Setback dimensions shall be as shown in attached Figure #1.

2. Top of cut slope. The top of cut slopes shall be made not nearer to a site boundary line than one fifth of the vertical height of cut with a minimum of two feet and a maximum of ten feet. The setback may need to be increased for any required interceptor drains.

3. Toe of fill slope. The toe of fill slope shall be made not nearer to the site boundary line than one half the height of the slope with a minimum of two feet and a maximum of twenty feet. Where a fill slope is to be located near the site boundary and the adjacent off-site property is developed, special precautions shall be incorporated in the work, as the Public Works Director deems necessary, to protect the adjoining property from damage as a result of such grading. These precautions may include but are not limited to:

a. Additional setbacks.

b. Provision for retaining or slough walls.

c. Mechanical or chemical treatment of the fill slope surface to minimize erosion.

d. Provisions for the control of surface water.

4. Modification of slope location. The Public Works Director may approve alternate setbacks. The Public Works Director may require an investigation and recommendation by a qualified engineer or engineering geologist to demonstrate that the intent of this Section has been satisfied.

E. Drainage and terracing.

1. General. Unless otherwise indicated on the approved grading plan, drainage facilities

shall conform to the provisions of this Section for cut or fill slopes steeper than three horizontal to one vertical.

2. Terraces.

a. Terraces of at least six feet in width shall be established at not more than thirty-foot vertical intervals on all cut or fill slopes to control surface drainage and debris except that where only one terrace is required, it shall be at mid-height. For cut or fill slopes greater than sixty feet and up to one hundred twenty feet in vertical height, one terrace at approximately mid-height shall be twelve feet in width. Terrace widths and spacing for cut and fill slopes greater than one hundred twenty feet in height shall be designed by the civil engineer and approved by the Public Works Director. Suitable access shall be provided to permit proper cleaning and maintenance.

b. Swales or ditches on terraces shall have a minimum gradient of five percent and must be paved with reinforced concrete not less than three inches in thickness or an approved equal paving. They shall have a minimum depth at the deepest point of one foot and minimum paved width of five feet.

c. A single run of swale or ditch shall not collect runoff from a tributary area exceeding thirteen thousand five hundred square feet (projected) without discharging into a downdrain.

3. Subsurface drainage. Cut and fill slopes shall be provided with subsurface drainage as necessary for stability.

4. Disposal. All drainage facilities shall be designed to carry water to the nearest practicable drainage way approved by the Public Works Director and/or other appropriate jurisdiction as a safe place to deposit such water. Erosion of ground in the area of discharge shall be prevented by installation of nonerosive downdrains or other devices.

Building pads shall have a drainage gradient of two percent toward approved drainage facilities, unless waived by the Public Works Director.

EXCEPTION: the gradient from the building pad may be one percent if all of the following conditions exist throughout the permit area:

a. No proposed fills are greater than ten feet in maximum depth.

b. No proposed finish cut or fill slope faces have a vertical height in excess of ten feet.

c. No existing slope faces, which have a slope face steeper than ten horizontally to one vertically, have a vertical height in excess of ten feet.

5. Interceptor drains. Paved interceptor drains shall be installed along the top of all cut slopes where the tributary drainage area above slopes toward the cut and has a drainage path greater than forty feet measured horizontally. Interceptor drains shall be paved with a minimum of three inches of reinforced concrete or gunite. They shall have a minimum depth of twelve inches and a minimum width of thirty inches measured horizontally against the drain. The slope of drains shall be as approved by the Public Works Director.

F. Excavation blasting.

1. General. No person shall do any excavation blasting without a permit from the Fire Chief. The application for such permit shall be on forms prescribed by the Fire Chief. Before the issuance of such a permit the Fire Chief may require a grading permit issued by the Public Works Department. Any conditions contained in the grading permit shall become conditions of the excavation blasting permit.

2. Authority. The Fire Chief is designated as the issuing authority for the City of Riverside in accordance with, and for the purposes designated in Section 12007 of the Health and Safety Code of the State of California.

3. Fees. The application shall be accompanied by the current fee.

4. Requirements and Conditions. In so far as applicable, the provisions of this Chapter relating to conditions in permits, procedure and the like matters shall govern excavation blasting permits, but the Fire Chief shall continue to enforce all applicable laws on blasting under his jurisdiction.

5. Appeal. Any person aggrieved by the action of the Fire Chief in denying or revoking

a permit required by this article for failure to meet or to comply with the provisions of this article or upon the grounds set forth in the California Fire Prevention Code and California Code of Regulations, Title 19 may appeal to the City Council within ten days after the respective decision is made.

G. Interpretation of standards.

1. If an ambiguity arises concerning the interpretation of the provisions for minimum grading standards or any general requirements contained in this Chapter, the Zoning Administrator shall make a determination of what constitutes compliance with the provisions contained within the applicable section. The Zoning Administrator may also refer the matter to the Planning Commission for consideration. The Zoning Administrator shall take action pursuant to this Section within working ten days of the date of a written request for interpretation.

H. Inspection.

1. General.

a. All grading operations for which a permit is required shall be subject to inspection. For projects involving both regular and engineered grading the permittee's civil engineer, architect or landscape architect and soils engineer as listed on the grading permit shall inspect and certify the grading.

b. When the Public Works Director has cause to believe that special conditions or unusual hazards or geologic factors may be involved in a "regular grading" operation it will be required to conform to "engineered grading" requirements.

2. All grading. The permittee's civil engineer, architect, landscape architect, or soils engineer shall inspect grading at the following stages of work and shall provide written notice of approval at each stage of review to the Public Works Director:

a. Rough grading stage. When rough grading has been completed and approximate final elevations have been established for building pads, drainage devices, and paved areas, and when temporary erosion control measures have been installed. This will be required for building permit issuance.

b. Final grading stage. When all grading has been completed including final building pads, completed drainage devices, and permanent erosion control facilities, including slope planting and irrigation systems as required. This is required for release of utilities and certificate of occupancy.

3. Planning Department inspection. At the discretion of the Planning Director, the Planning Department may also inspect engineered grading for compliance with conditions of approval which may include, but are not limited to, slope ratio, slope height, slope location, contour grading, areas of land disturbance, archaeology, paleontology, landscaping, erosion control, protection of native plants and animals, or other conditions of approval relating to environmental or aesthetic concerns. The Planning Department shall file reports with the Public Works Director as required by the Public Works Director. Grading other than engineered grading shall be designated "Regular Grading".

4. Notification of noncompliance. If, in the course of fulfilling their responsibility under this Chapter, the civil engineer, soils engineer, engineering geologist, testing agency, Public Works Department and/or Planning Department finds that the work is not being done in conformance with this Chapter or the approved grading plans, the discrepancies shall be reported immediately in writing to the permittee, the permittee's civil engineer and to the Public Works Director. It will be the permittee's civil engineer's responsibility to devise appropriate corrective measures.

5. Transfer of responsibility for approval. If the civil engineer, the soils engineer, the engineering geologist, or the testing agency of record resigns or is unable to perform his/her duties during the course of the work, the work shall be stopped until a replacement has agreed to accept responsibility for the work of the predecessor. The applicant shall provide the City

with the names of the civil engineer, soils engineer, engineering geologist or the testing agency for the project.

6. Approved plans and copy of a valid grading permit shall be located on the site at all times while work is being performed.

I. Completion of work.

1. Final reports. Upon completion of grading work the Public Works Director shall require the following reports, drawings and supplements thereto:

a. An as-graded plan prepared by the civil engineer including original ground surface elevations, as-graded ground surface elevations, lot drainage patterns, and locations and elevations of all surface and subsurface drainage facilities. The civil engineer shall state that to the best of his or her knowledge the work was done in accordance with the final approved grading plan.

b. A soils-grading report prepared by the soils engineer, including locations and elevations of field density tests, summaries of field and laboratory tests, data and comments on any changes made during grading including their effect on the recommendations made during grading and their effect on the recommendations made in the soils engineering investigation report. The report shall also include a finding as to the adequacy of the site for the intended use.

c. A geologic grading report, if necessary, prepared by the engineering geologist, including a final description of the geology of the site and any new information disclosed during the grading and the effect of same on recommendations incorporated in the approved grading plan. The report shall also include a finding as to the adequacy of the site for the intended use as affected by geologic factors.

2. Notice of Completion. The as-graded plan and certifications as required in Section 17.28.010 I.1. shall constitute the Notice of Completion. The Public Works Director may make a final inspection to ensure that the installation of all drainage facilities and their protective devices, landscaping and irrigation and all erosion-control measures have been completed in accordance with the final approved grading plan prior to releasing utilities or certificate of occupancy for improvements on the site. (Ord. 6453 § 1, 1998)

Section 17.28.020 Hillside/Arroyo Grading.

Hillside/Arroyo Grading. The following supplementary regulations shall apply to the grading of hillsides and arroyos.

A. Grading requirements. Where grading is proposed on any parcel having an average natural slope of ten percent or greater, or which is zoned Residential Conservation (RC), or which is located within or adjacent to the Mockingbird Canyon, Woodcrest, Prenda, Alessandro, Tequesquite, or Springbrook Arroyos, or a blue line stream identified on USGS Maps, or other significant arroyo, the grading must be confined per this Chapter and limited to the minimum grading necessary to provide for a house, driveway, garage and limited level yard. The ungraded terrain must be left in its natural form for the remainder of the site. All hillside/arroyo grading shall conform to the following general requirements:

1. The overall shape, height or grade of any cut or fill slopes shall be developed utilizing contour grading in concert with existing natural contours and the scale of the natural terrain of the site.

2. Where two cut or fill slopes intersect, the intersection shall be horizontally rounded and blended.

3. The tops of cut and fill slopes shall be rounded vertically with a constant tangent (T) of ten feet (See Figure 2).

4. Where any cut or fill slopes intersect the natural grade, the intersection of each slope shall be vertically and/or horizontally rounded and blended with the natural contours so as to

present a natural slope appearance.

5. Where any cut or fill slope exceeds one hundred feet in horizontal length, the horizontal contours of the slope shall be developed in concert with existing natural contours.

6. The area of a site proposed to be graded shall be that which fits into the natural terrain and which allows for a minimal amount of grading. The ungraded area must be left in its natural form for the remainder of the site. No native vegetation shall be removed and no non-native vegetation shall be introduced or development of any kind shall be allowed within hillside areas not included as part of the graded pad area. The Zoning Administrator shall be responsible to determine the precise boundaries of the non-graded area to be retained as natural open space and an open space easement shall be recorded over this area. Portions of the non-graded area may be excluded from the natural open space easement by the Zoning Administrator based on factors specific to each lot, including whether the area is isolated from a meaningful area of contiguous open space and the absence of unique topographical or geological features. The intent of this provision is to create significant areas of contiguous open space and not to create small, isolated areas of open space. No change to the boundaries of the area determined to be placed in natural open space by the Zoning Administrator shall be made unless the Planning Commission determines that exceptional or special circumstances addressed in Chapter 17.32 Conditional Exceptions apply.

7. Structures shall be designed to fit with the contours of the hillside and relate to the overall form of the terrain. Structures shall be designed to fit into the hillside rather than altering the hillside to fit the structure.

8. Streets shall be designed to generally follow the natural contours and land form in order to minimize cut and fill.

9. Pad sizes for single family residential development shall be limited as follows:

Under 10% average natural slope within the area to be graded - No limit

10% to 15% average natural slope within the area to be graded - 27,000 square feet

15% to 30% average natural slope within the area to be graded - 21,000 square feet

30% to 40% average natural slope within the area to be graded - 18,000 square feet

Over 40% average natural slope - no grading per 19.28.020 A. 12.

The Zoning Administrator shall have the authority to increase or decrease the pad size category by up to 25% without a grading exception depending on the sensitivity of the site. Sensitivity shall be determined by such factors as the pad's visibility from the public right-of-way, its location on a ridgeline, the presence of habitat for sensitive species including rare, threatened, or endangered species, or the presence of unique topographic features such as knolls, valleys, rock outcroppings or other features or views. (Level padded area defined as area that is at a slope ratio of 5:1 or flatter).

10. Slopes having a ratio of 3.9:1 or steeper shall not exceed 20 feet in vertical height. Slopes having a 4:1 or flatter ratio may be up to twenty five feet in vertical height. The Zoning Administrator shall have the authority to increase vertical slope height by up to 25% without a grading exception depending on the sensitivity of the site. Sensitivity shall be determined by such factors as the slope's visibility from the public right-of-way, its location on a ridge line, the presence of habitat for sensitive species including rare, threatened, or endangered species, or the presence of unique topographic features such as knolls, valleys, rock outcroppings or other features or views. (Level padded area defined as area that is at a slope ratio of 5:1 or flatter).

11. Slopes requiring benches shall not normally be permitted.

12. No grading shall be permitted on slopes exceeding 40% unless findings can be made by the Planning Commission that exceptional or special circumstances as set forth in Chapter 17.32 Conditional Exceptions apply.

13. Driveway grading:

a. Shall not exceed fifteen feet in width.

b. Shall not exceed a fifteen percent finished grade unless otherwise approved by the Fire Department and Planning Director.

c. Driveway cut and fill slopes shall be subject to the same restrictions as identified in Chapter 17.28.

d. Driveway grading required to provide access to the level building pad area is not included as part of the total permitted level pad area.

14. Arroyo grading.

a. No development or grading of any kind shall be permitted within fifty feet of the limits of the Mockingbird Canyon, Woodcrest, Prenda, Alessandro, Tequesquite, or Springbrook Arroyos and associated tributaries as shown on Exhibits A-F. The Zoning Administrator shall have the authority to administratively allow grading within designated arroyo tributaries depending on the sensitivity of the area. Sensitivity shall be determined by such factors as the presence of riparian vegetation, habitat for rare or endangered species, significant rock outcroppings or other unique topographic features on the property proposed to be graded or in nearby segments of the same tributary.

b. The limits of these arroyos shall include all that land within the watercourse area, the adjacent slopes having an average natural slope of thirty percent or greater, and all other areas within the boundaries shown on Exhibits A-F.

c. No grading for private crossings of these arroyos shall be permitted. Grading for public street crossings must be limited to the minimum necessary for access and emergency access.

d. No native vegetation shall be removed and no non-native vegetation shall be introduced within the boundaries of these arroyos in areas that cannot be graded.

e. All land within the boundaries of these arroyos shall be included as an open space easement on final tract and parcel maps.

f. Where drainage structures enter these arroyos the structure must be blended into the natural terrain, and where necessary, lined with natural or quarried rock or other material as approved by the Planning Director and Public Works Director.

g. Where possible, other arroyos, shall be preserved as natural drainage courses. Significant natural features within these arroyos shall be preserved including riparian vegetation, boulders, rock outcroppings, milling features and deeply incised channels. These features shall be shown on the grading plans submitted for review. To insure that these areas are adequately preserved, an appropriate setback for development and grading may be applied.

h. Development or grading within blue line streams shall be limited to the minimum necessary for access or drainage structures. Any disturbance will require permits from the U.S. Corps of Engineers and the State Department of Fish and Game. (Ord. 6673 §§ 6, 7, 8, 9, 2003; Ord. 6453 § 1, 1998)

Section 17.28.030 Dust Control/Erosion Control/Landscaping.

A. Dust control. All grading activity shall comply with AQMD rules to control fugitive dust.

B. Erosion Control/Landscaping. The faces of cut and fill slopes which measure five feet or greater in vertical height shall be treated and maintained to control against erosion and protect the public health, safety, and welfare. This control shall consist of effective planting, and/or, check dams, cribbing, riprap other devices. Erosion controls shall be installed as soon as practical and prior to the final approval. Where cut slopes are not subject to erosion due to the erosion-resistant character of the materials, such protection may be omitted.

1. Landscape materials on graded slopes shall be designed to be compatible with adjacent natural vegetation and shall be suitable for the climatic, soil and ecological characteristics of the area. Plant materials that require excessive water after becoming

established should be avoided. Fire resistant and drought tolerant materials shall be selected wherever feasible.

2. Existing trees which have a six inch or greater trunk size at a point three feet above grade shall be accurately shown on the grading plan and shall be preserved in place whenever possible as determined by the Planning Director. (Ord. 6453 § 1, 1998)